Research Opportunities on the Low Temperature Microgravity Physics Facility (LTMPF) on the International Space Station

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The Low Temperature Microgravity Physics Facility (LTMPF) is a state-of-the-art facility for long duration science investigations whose objectives can only be achieved in microgravity and at low temperature. LTMPF consists of two reusable, cryogenic facilities with self-contained electronics, software and communication capabilities. The Facility will be first launched by Japanese HIIA Rocket in 2003 and retrieved by the Space Shuttle, and will have at least five months cryogen lifetime on the Japanese Experiment Module Exposed Facility (JEM EF) of the International Space Station. A number of high precision sensors of temperature, pressure and capacitance will be available, which can be further tailored to accommodate a wide variety of low temperature experiments. This paper will describe the LTMPF and its goals and design requirements. Currently there are six candidate experiments in the flight definition phase to fly on LTMPF. Future candidate experiments will be selected through the NASA Research Announcement process. Opportunities for utilization and collaboration with international partners will also be discussed.

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